

1 37. A method for controlling the texture of an alloy, comprising
2 the steps of:

3 defining equal channel angular extrusion routes for defining
4 predetermined shear planes and crystallographic directions in the alloy;

5 selecting at least a route from the defined routes for plastically
6 deforming the alloy during equal channel angular extrusion; and

7 subjecting the alloy to a predetermined number of passes through
8 the selected routes.

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10 38. An alloy produced by the method of claim 37 comprising a
11 randomized microstructure and a texture with a substantially uniform
12 grain size.

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14 39. An alloy produced by the method of claim 37 comprising a
15 strong texture.

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17 40. An alloy produced by the method of claim 37 comprising
18 substantially random textures.
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1 41. A method for controlling the texture of an alloy, comprising
2 the steps of:

3 defining equal channel angular extrusion routes for defining
4 predetermined shear planes and crystallographic directions in the alloy;

5 selecting at least one route from the defined routes for processing
6 the alloy;

7 processing the alloy through the selected at least one route; and

8 recovery annealing the alloy at a temperature range and a time
9 period determined for the alloy for obtaining substantially uniform grain
10 size, global microstructure and texture.

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12 42. A method for influencing the texture evolution of an alloy,
13 comprising the steps:

14 defining equal channel angular extrusion routes for defining
15 predetermined shear planes and crystallographic directions in the alloy;

16 selecting at least one route from the defined routes for processing
17 the alloy;

18 processing the alloy through the selected at least one route;

19 recovery annealing the alloy at a temperature range and a time
20 period determined for the alloy; and

21 further recovery annealing the alloy at a temperature greater than
22 maximum temperature of the temperature range.
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1 43. A method for controlling the texture of an alloy, comprising
2 the steps of:

3 defining equal channel angular extrusion routes for defining
4 predetermined shear planes and crystallographic directions in the alloy;

5 selecting at least one route from the defined routes for processing
6 the alloy;

7 processing the alloy through the selected at least one route; and

8 post-extrusion processing the alloy to create a specific texture, a
9 uniform grain size and a high texture strength for the alloy.

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11 44. A method for controlling the texture of an alloy, which
12 comprises the steps of:

13 defining equal channel angular extrusion routes for defining
14 predetermined shear planes and crystallographic directions in the alloy;

15 selecting at least one route from the defined routes for processing
16 the alloy;

17 processing the alloy through the selected at least one route; and

18 further processing the alloy under equal channel angular extrusion
19 in order to create a specific texture, a uniform grain size and a high
20 texture strength for the alloy.